WE CLAIM:

1. A light guide, comprising:

a light input area through which light is introduced into the light guide; and

first and second opposing surfaces between which light introduced into the light guide propagates, wherein a portion of the light guide near the light input area has extraction structures configured and arranged to extract more light out of the light guide when light is propagating in the light guide in a direction toward the light input area than when light is propagating in the light guide in a direction away from the light input area.

2. A light guide as recited in claim 1, wherein the extraction structures comprise facets on at least one surface, at least some of which are shadowed from light introduced from the light input area when the light is propagating in the direction away from the light input area.

3. A light guide as recited in claims 1, wherein the first and second opposing surfaces diverge in a direction away from the light input area.

4. A light guide as recited in claims 1-3, wherein the first and second opposing surfaces comprise surfaces of a solid light guide.

5. A light guide as recited in claim 4, wherein the extraction structures comprises facets on a surface of the light guide, wherein light is contained within the light guide as it propagates between the first and second opposing surfaces by total internal reflection and is extracted from the light guide by total internal reflection at the interface of at least one of the facets.

6. A light guide as recited in claims 1-3, wherein the extraction structures comprise a plurality of unit cells, each unit cell comprising a plurality of facets including at least one facet that is shadowed from light introduced from the

light input area when the light is propagating in the direction away from the light input area.

7. A light guide as recited in claims 1-3, wherein the extraction structures are distributed over the length of at least one of the first and second surfaces.

8. A light guide as recited in claim 6, wherein the unit cell comprises at least three facets each facet makes an angle with respect to a common plane of the light guide of about 25° to 50°, 0.1°to 5°, and 1°to 2°, wherein the facet making the angle of 25° to 50°, is shadowed.

9. A light guide as recited in claim 8, wherein the extraction structures comprise structures wherein facets that are shadowed make an angle of about 30° to 40°.

10. A light guide as recited in claim 1 further comprising additional structures disposed on at least one of the first and second opposing surfaces, and additional structures being configured and arranged to control the angular direction of light extracted from the light guide in a direction that is substantially orthogonal to a principal axis of the extraction structures.

11. A light guide as recited in claim 10, wherein the extraction structures comprise facets running along a first axis and the additional structures comprise facets running along a second axis different than the first axis.

12. A light guide as recited in claim 11, wherein the first axis is orthogonal to the second axis.

13. A light guide as recited in any of claims 10-12, wherein the additional structures are disposed on a surface opposite the extraction structures.

14. A light guide as recited in any of claims 10-12, wherein the additional structures are disposed on the same surface as the extraction structures.

15. An illumination system, comprising:

a light source,

a light guide as recited in any of claims 1, 2, 3, 5, 10, 11or 12.

16. An illumination system as recited in claim 15, further comprising a structured film disposed to receive and redirect light extracted from the light guide.

17. An illumination system as recited in claim 16, where in the structured film comprises a plurality of linear prisms.

18. An illumination system as recited in claim 15, wherein one of the first and second surfaces forms a light emitting surface, the illumination system further comprising a structured reflector disposed adjacent the surface of the light guide opposite the light emitting surface to redirect a portion of light escaping through the adjacent surface back toward the light guide.

19. An illumination system as recited in claim 16, wherein one of the first and second surface forms a light emitting surface, the illumination system further comprising a structured reflector disposed adjacent the surface of the light guide opposite the light emitting surface to redirect a portion of light escaping through the adjacent surface back toward the light guide.

20. An illumination system as recited in claim 15, wherein the light source comprises at least one point light source.

21. An illumination system as recited in claim 20, wherein the light source comprises at least one LED.

22. An illumination system as recited in claim 21, wherein the light source comprises a plurality of LEDs, at least two of the plurality of LEDs being a different color.

23. A display comprising:

a display panel; and

an illumination system as recited in claim 15.

24. A display as recited in claim 23, wherein the illumination system further comprises a structured film disposed between the light guide and the display panel.

25. A display as recited in claims 23, wherein the illumination system further comprises a structured reflector, the display panel being disposed on a first side of the light guide and the structured reflector being disposed on an opposite side of the light guide.

26. A display as recited in claims 24, wherein the illumination system further comprises a structured reflector, the display panel being disposed on a first side of the light guide and the structured reflector being disposed on an opposite side of the light guide.

27. A light guide, comprising:

a light input area through which light is introduced into the light guide;

first and second surfaces between which light introduced into the light guide propagates; and

means for extracting light out of the light guide such that more light is extracted from the light guide when the light is propagating in the light guide in a direction toward the light input area than when the light is propagating in the light guide in a direction away from the light input area.

28. A light guide as recited in claim 27 further comprising means for diffusing light extracted from the light guide to improve uniformity.

29. An illumination system comprising:

a light guide as recited in any of claims 27 or 28; and

means for redirecting light extracted from the light guide in a preferred direction.

30. An illumination system comprising:

a plurality of different colored LEDs;

a light guide for distributing light emitted from the LEDs over a surface area; and

means for extracting light from the light guide the both uniformly mixes the different colored LEDs and provides spatial uniformity for the extracted light.